

What is claimed is:

1. A faucet comprising:

a spout;

a passageway that conducts water flow through the spout;

an electrically operable valve disposed within the passageway;

a manual valve disposed within the passageway in series with the electrically operable valve;

a manual handle that controls the manual valve; and

a capacitive touch control that is positioned in the spout, where the capacitive touch control toggles the electrically operable valve.
2. The faucet of Claim 1, further comprising a logical control that toggles the electrically operable valve when the touch control is touched and released within a period of time shorter than a predetermined threshold, but which does not toggle the electrically operable valve when the touch control is touched for a period longer than the predetermined threshold.
3. The faucet of Claim 2, wherein the logical control toggles the electrically operable valve when the touch control is touched and released within a period of time between a predetermined lower bound and a predetermined upper threshold.

4. The faucet of Claim 3, wherein the predetermined lower bound is about 50ms, and the predetermined upper threshold is about 250ms.
5. The faucet of Claim 1, wherein the electrically operable valve is a magnetically latching valve.
6. The faucet of Claim 1, further comprising a proximity sensor that is sensitive to motion of objects within a detection zone of the proximity sensor.
7. The faucet of Claim 6, wherein the faucet has:
a manual mode, wherein the proximity sensor is inactive; and
a hands-free mode, wherein water flow is toggled on and off in response to the proximity sensor.
8. The faucet of Claim 1, further comprising a second capacitive touch control disposed within the manual handle that toggles the electrically operable valve.
9. A faucet comprising:
a spout;
a passageway that conducts water flow through the spout;
an electrically operable valve disposed within the passageway and having an opened position, in which water is free to flow through the passageway, and a closed position, in which the passageway is blocked;

a manual valve disposed within the passageway in series with the electrically operable valve;

a manual handle that controls the manual valve;

a first capacitive touch-control that is positioned in the spout and that generates a first output signal while the touch-control is in contact with a user;

a second capacitive touch-control that is positioned in the manual handle and that generates a second output signal while the touch-control is in contact with a user;

a logical control that receives the first and second output signals, and which toggles the magnetically latching valve when an output signal begins and ends within a period of time between a predetermined lower bound and a predetermined upper threshold; and

a proximity sensor that is sensitive to motion of objects within a detection zone of the proximity sensor;

wherein the faucet has a manual mode, wherein the proximity sensor is inactive, and a hands-free mode, wherein the magnetically latching valve is toggled between its opened and closed positions in response to the proximity sensor, subject to being over-ridden by the output signal and logical control.

10. A faucet comprising:

a spout;

a touch control disposed within the spout;

a passageway that conducts water flow through the spout;
an electrically operable valve disposed within the passageway;
a logical control that toggles the electrically operable valve when the touch control is touched and released within a period of time less than a predetermined threshold, but which does not toggle the electrically operable valve when the touch control is touched for a period longer than the predetermined threshold.

11. The faucet of Claim 10, wherein the electrically operable valve is a magnetically latching valve.
12. The faucet of Claim 10, further comprising a proximity sensor that produces a sensor output corresponding to motion of objects within a detection zone of the proximity sensor.
13. The faucet of Claim 12, wherein the faucet has:
a manual mode, wherein the proximity sensor is inactive; and
a hands-free mode, wherein water flow is toggled on and off in response to the sensor output signal.
14. The faucet of Claim 10, further comprising a second electrically operable valve having a plurality of partially closed positions, the second electrically operable valve being disposed in the passageway upstream of a mixing point, such that the

second electrically operable valve affects the flow rate of only a hot or cold water supply.

15. The faucet of Claim 14, wherein the logical control directs the second electrically operable valve to change among open, closed, and partially closed positions in response to a duration of contact with the touch control.
16. A capacitive touch-control for a faucet having an electrically operable valve that is toggled in response to a toggle signal, the touch-control comprising:
an electrode; and
a logical control that generates the toggle signal when the touch control is touched and released within a period of time less than a predetermined threshold, but which does not generate a toggle signal when the touch control is touched for a period longer than the predetermined threshold.
17. The capacitive touch-control of Claim 16, further comprising a proximity sensor that is sensitive to motion of objects within a detection zone of the proximity sensor.
18. The capacitive touch-control of Claim 17, wherein the predetermined lower bound is about 50ms and the predetermined upper threshold is about 250ms.